		Pushing the Enve	elope
		2006 Mathemat	ics
		Program of Stud	dies
Kentucky Mathemati	cs		
Grade 5			
Activity/Lesson	State	Standards	
			Measurement: Students will use charts and
History of Aviation		MA.5.MA-5-M-S-	tables to determine time schedules, work with
Propulsion (pgs. 5-9)	KY	MPA2	time zones and estimate time
History of Aviation		MA.5.MA-5-M-S-	Measurement: Students will convert units of time
Propulsion (pgs. 5-9)	KY	SM3	and determine elapsed time
			Measurement: Students understand that
Types of Engines (MA.5.MA-5-M-U-	appropriate techniques, tools and formulas are
pgs. 11-23)	KY	3	used to determine measurements.
. 5			Measurement: Students understand that
Chemistry (pgs. 25-		MA.5.MA-5-M-U-	appropriate techniques, tools and formulas are
41)	KY	3	used to determine measurements.
,			Measurement: Students will apply standard units
Chemistry (pgs. 25-		MA.5.MA-5-M-S-	of measure to length, weight, temperature and
41)	KY	MPA3	liquid capacity
,			Measurement: Students will use standard units
			to determine area and perimeter of triangles and
			rectangles and volume of rectangular prisms
Chemistry (pgs. 25-		MA 5 MA-5-M-S-	and apply these skills to solve real-world and
41)	KY	MPA6	mathematical problems
11)	101	IVII 7 to	Number properties and operations: Students will
Physics and Math		MA.5.MA-5-	explore the use of simple ratios to describe
(pgs. 43-63)	KY	NPO-S-NS4	problem situations
(pgs. +0-00)	IXI	141 0-0-1404	Measurement: Students understand that
Physics and Math		ΜΔ 5 ΜΔ-5-Μ-11-	appropriate techniques, tools and formulas are
(pgs. 43-63)	KY	3	used to determine measurements.
(pgs. 45-05)	IXI	3	Algebraic thinking: Students will use variables or
Physics and Math		MA.5.MA-5-AT-	missing values to model verbal descriptions of
-	KY	S-VEO3	real-world situations
(pgs. 43-63)	N I	3-4503	
			Algebraic thinking: Students will model real-
Dhysics and Math		NAA 5 NAA 5 AT	world situations with simple number sentences
Physics and Math	100		using manipulatives, numbers, variables and/or
(pgs. 43-63)	KY	S-EI2	symbols
Dhusiaa and Matt			Algebraic thinking: Students understand that
Physics and Math	101	MA.5.MA-5-AT-	functions can be written in words, as a symbolic
(pgs. 43-63)	KY	U-6	sentence, or in a table.
D 1 1 4 4 11 11 1			Measurement: Students understand that
Rocket Activity (pgs.	101		appropriate techniques, tools and formulas are
69-75)	KY	3	used to determine measurements.
		Pushing the Enve	
		2006 Mathemat	
		Program of Stud	dies
Kentucky Mathemati	cs		
Grade 6			
Activity/Lesson	State	Standards	

			Management Otestants 1 1 1 1 1
			Measurement: Students understand that
			measurements are determined by using
Types of Engines (MA.6.MA-6-M-U-	appropriate techniques, tools, formulas and
pgs. 11-23)	KY	3	degree of accuracy needed for the situation.
			Measurement: Students will explain how
			measurements and measurement formulas are
Types of Engines (MA.6.MA-6-M-S-	related or different (e.g., compare the perimeter
pgs. 11-23)	KY	MPA6	with the area of a rectangle)
/			Measurement: Students understand that
			measurements are determined by using
Chemistry (pgs. 25-		MA 6 MA-6-M-U-	appropriate techniques, tools, formulas and
41)	KY	3	degree of accuracy needed for the situation.
71)	101	<u> </u>	Measurement: Students will explain how
			measurements and measurement formulas are
Chamietry (nac. 25		MARMARMS	related or different (e.g., compare the perimeter
Chemistry (pgs. 25-	101		
41)	KY	MPA6	with the area of a rectangle)
			Measurement: Students will estimate, compare
			and convert (meaning to make ballpark
			comparisons/not memorize conversion factors
			between U.S. and metric) units of measurement
			for length, weight/mass and volume/capacity
			within the U.S. customary system and within the
Chemistry (pgs. 25-			metric system (volume/capacity (e.g., cups,
41)	KY	SM2.c	pints, quarts, gallons, milliliters, liters))
			Algebraic thinking: Students will substitute
Chemistry (pgs. 25-		MA.6.MA-6-AT-	numerical values for variables and evaluate
41)	KY	S-VEO2	algebraic expressions
Chemistry (pgs. 25-		MA.6.MA-6-AT-	Algebraic thinking: Students will solve problems
41)	KY	S-EI2	involving simple formulas (e.g., A = lw, D = rt)
			Measurement: Students understand that
			proportional reasoning is a tool for modeling and
Physics and Math		MA.6.MA-6-	solving problems encountered in everyday
(pgs. 43-63)	KY	NPO-U-4	situations.
			Number properties and operations: Students will
			develop meaning of ratio (e.g., describe and
Physics and Math		MA.6.MA-6-	compare two sets of data using ratios and
(pgs. 43-63)	KY	NPO-S-RP2	appropriate notations: 3:5, 3/5, 3 to 5)
, ,			Number properties and operations: Students will
Physics and Math		MA.6.MA-6-	define and apply ratios to solve real-world
(pgs. 43-63)	KY	NPO-S-RP3	problems
(i. J. :)			Measurement: Students understand that
			measurements are determined by using
Physics and Math		MA 6 MA_6_M II	appropriate techniques, tools, formulas and
(pgs. 43-63)	KY	3	degree of accuracy needed for the situation.
(pgs. +0-00)	IXI	J	Measurement: Students will explain how
			measurements and measurement formulas are
Dhysics and Math			
Physics and Math	100		related or different (e.g., compare the perimeter
(pgs. 43-63)	KY	MPA6	with the area of a rectangle)
D			Algebraic thinking: Students will represent,
Physics and Math		MA.6.MA-6-AT-	interpret and describe function relationships
(pgs. 43-63)	KY	S-PRF2	through tables, graphs and verbal rules

			Measurement: Students understand that
			measurements are determined by using
Rocket Activity (pgs.		MA.6.MA-6-M-U-	appropriate techniques, tools, formulas and
69-75)	KY	3	degree of accuracy needed for the situation.
			Measurement: Students will explain how
			measurements and measurement formulas are
Rocket Activity (pgs.		MA 6 MA-6-M-S-	related or different (e.g., compare the perimeter
69-75)	KY	MPA6	with the area of a rectangle)
Rocket Activity (pgs.			Algebraic thinking: Students will solve problems
69-75)	KY	S-EI2	involving simple formulas (e.g., A = lw, D = rt)
09-13)	IXI	J-LIZ	involving simple formulas (e.g., A = IW, D = It)
		Pushing the Enve	l lone
		2006 Mathemat	
		Program of Stud	
Kentucky Mathemat	ire	i rogram or otac	
Grade 7			
Activity/Lesson	State	Standards	
Activity/Lesson	State	Standards	Measurement: Students understand that
Types of Facilities /			measurements are determined by using
Types of Engines (101		appropriate techniques, tools, formulas and
pgs. 11-23)	KY	3	degree of accuracy needed for the situation.
			Measurement: Students will explain how
			measurements and measurement formulas are
Types of Engines (I	related or different (e.g., perimeter and area of
pgs. 11-23)	KY	MPA6	rectangles)
			Measurement: Students understand that
			measurements are determined by using
Chemistry (pgs. 25-		MA.7.MA-7-M-U-	appropriate techniques, tools, formulas and
41)	KY	3	degree of accuracy needed for the situation.
,			Measurement: Students will explain how
			measurements and measurement formulas are
Chemistry (pgs. 25-		MA 7 MA-7-M-S-	related or different (e.g., perimeter and area of
41)	KY	MPA6	rectangles)
71)		IVII 7 CO	Algebraic thinking: Students will substitute
Chemistry (pgs. 25-		MA.7.MA-7-AT-	values for variables to evaluate algebraic
41)	KY	S-VEO2	expressions
,	IXI		Algebraic thinking: Students will solve problems
Chemistry (pgs. 25-	107		
41)	KY	S-EI2	involving formulas
			Number properties and operations: Students
DI			understand that proportional reasoning is a tool
Physics and Math		MA.7.MA-7-	for modeling and solving problems encountered
(pgs. 43-63)	KY	NPO-U-4	in everyday situations.
			Measurement: Students understand that
			measurements are determined by using
Physics and Math		MA.7.MA-7-M-U-	appropriate techniques, tools, formulas and
(pgs. 43-63)	KY	3	degree of accuracy needed for the situation.
			Measurement: Students will explain how
			measurements and measurement formulas are
Physics and Math		MA.7 MA-7-M-S-	related or different (e.g., perimeter and area of
(pgs. 43-63)	KY	MPA6	rectangles)
(pgo. 40 00)	1 1 1	IVII 7 (U	Algebraic thinking: Students will substitute
Dhyeice and Math		MA.7.MA-7-AT-	
Physics and Math	l/V	I	values for variables to evaluate algebraic
(pgs. 43-63)	KY	S-VEO2	expressions

Physics and Math		MA.7.MA-7-AT-	Algebraic thinking: Students will solve problems
(pgs. 43-63)	KY	S-EI2	involving formulas
			Measurement: Students understand that
			measurements are determined by using
Rocket Activity (pgs.		MA.7.MA-7-M-U-	appropriate techniques, tools, formulas and
69-75)	KY	3	degree of accuracy needed for the situation.
			Measurement: Students will explain how
			measurements and measurement formulas are
Rocket Activity (pgs.		MA.7.MA-7-M-S-	related or different (e.g., perimeter and area of
69-75)	KY	MPA6	rectangles)
Rocket Activity (pgs.		MA.7.MA-7-AT-	Algebraic thinking: Students will solve problems
69-75)	KY	S-EI2	involving formulas
		Pushing the Enve	
		2006 Mathemat	
		Program of Stud	dies
Kentucky Mathemat	ics		
Grade 8			
Activity/Lesson	State	Standards	
			Number properties and operations: Students will
Types of Engines (MA.8.MA-8-	derive and use formulas for various rates (e.g.,
pgs. 11-23)	KY	NPO-S-RP2	distance/time, miles per hour)
			Measurement: Students understand that
			measurements are determined by using
Types of Engines (appropriate techniques, tools, formulas and
pgs. 11-23)	KY	3	degree of accuracy needed for the situation.
			Measurement: Students will develop and apply
			formulas for volume and surface area of cubes,
			cylinders and right rectangular prisms;
Types of Engines (investigate relationships between and among
pgs. 11-23)	KY	MPA7	them
			Number properties and operations: Students will
Chemistry (pgs. 25-		MA.8.MA-8-	derive and use formulas for various rates (e.g.,
41)	KY	NPO-S-RP2	distance/time, miles per hour)
			Measurement: Students understand that
			measurements are determined by using
Chemistry (pgs. 25-			appropriate techniques, tools, formulas and
41)	KY	3	degree of accuracy needed for the situation.
			Measurement: Students will develop and apply
			formulas for volume and surface area of cubes,
			cylinders and right rectangular prisms;
Chemistry (pgs. 25-			investigate relationships between and among
41)	KY	MPA7	them
			Number properties and operations: Students
			understand that proportional reasoning is a tool
Physics and Math		MA.8.MA-8-	for modeling and solving problems encountered
(pgs. 43-63)	KY	NPO-U-4	in everyday situations.
			Number properties and operations: Students will
Physics and Math		MA.8.MA-8-	derive and use formulas for various rates (e.g.,
(pgs. 43-63)	KY	NPO-S-RP2	distance/time, miles per hour)
			Algebraic thinking: Students will, given a
Physics and Math		MA.8.MA-8-AT-	formula, substitute appropriate elements from a
(pgs. 43-63)	KY	S-VEO2	real-world or mathematical situation

		Algebraic thinking: Students will describe, define
		and provide examples of variables and
		expressions with a missing value based on real-
KV		world and/or mathematical situations
N I	S-VEU3	
	MA O MA O	Number properties and operations: Students will
107		derive and use formulas for various rates (e.g.,
KY	NPO-S-RP2	distance/time, miles per hour)
		Measurement: Students understand that
	NAA O NAA O NA LI	measurements are determined by using
101		appropriate techniques, tools, formulas and
KY	3	degree of accuracy needed for the situation.
	O O.A.T	Algebraic thinking: Students will, given a
101		formula, substitute appropriate elements from a
KY		real-world or mathematical situation
		Algebraic thinking: Students will solve problems
KY	S-EI2	involving formulas
	Pushing the Envi	plana
ics		
State	Standards	
		Measurement: Students understand that
		measurements are determined by using
	MA.9-12.MA-HS-	appropriate techniques, tools, formulas and
KY	M-U-3	degree of accuracy needed for the situation.
		Measurement: Students understand that
		measurements are determined by using
	MA.9-12.MA-HS-	appropriate techniques, tools, formulas and
KY	M-U-3	degree of accuracy needed for the situation.
		Measurement: Students will describe how
		change in one or more dimensions of a
		geometric figure or object affects the perimeter,
	MA.9-12.MA-HS-	circumference, area and/or volume of the figure
KY	M-S-MPA4	or object
		Number properties and operations: Students
		understand that proportional reasoning is a tool
	MA.9-12.MA-HS-	for modeling and solving problems encountered
KY	NPO-U-5	in everyday situations.
		Number properties and operations: Students will
	MA.9-12.MA-HS-	calculate and apply ratios, proportions, rates
KY	NPO-S-RP1	and percentages to solve problems
		Measurement: Students understand that
		measurements are determined by using
	MA.9-12.MA-HS-	appropriate techniques, tools, formulas and
KY	M-U-3	degree of accuracy needed for the situation.
	MA.9-12.MA-HS-	Algebraic thinking: Students will interpret
KY		representations of functions of two variables
	-	Algebraic thinking: Students will use a variety of
		symbolic representations, including recursive
	MA.9-12.MA-HS-	and parametric equations, for functions and
KY	AT-S-PRF7	relations
	KY KY KY KY	MA.8.MA-8- NPO-S-RP2 MA.8.MA-8-M-U- 3 MA.8.MA-8-AT- KY MA.8.MA-8-AT- S-VEO2 MA.8.MA-8-AT- S-E12 Pushing the Enver 2006 Mathemat Program of Studics State Standards MA.9-12.MA-HS- KY MA.9-12.MA-HS- NPO-S-RP1

		Algebraic thinking: Students will evaluate
		polynomial and rational expressions and
Physics and Math		MA.9-12.MA-HS-expressions containing radicals and absolute
(pgs. 43-63)	KY	AT-S-VEO12 values at specified values of their variables
		Algebraic thinking: Students will approximate
Physics and Math		MA.9-12.MA-HS- and interpret rates of change from graphical and
(pgs. 43-63)	KY	AT-S-El9 numerical data
		Algebraic thinking: Students will graph a linear
Physics and Math		MA.9-12.MA-HS-equation and demonstrate that it has a constant
(pgs. 43-63)	KY	AT-S-EI10 rate of change
		Algebraic thinking: Students wil write and solve
		linear sentences, describing real-world
Physics and Math		MA.9-12.MA-HS-situations by using and relating formulas, tables
(pgs. 43-63)	KY	AT-S-EI17 graphs and equations
		Measurement: Students understand that
		measurements are determined by using
Rocket Activity (pgs.		MA.9-12.MA-HS-appropriate techniques, tools, formulas and
69-75)	KY	M-U-3 degree of accuracy needed for the situation.
		Algebraic thinking: Students will write and solve
		linear sentences, describing real-world
Rocket Activity (pgs.		MA.9-12.MA-HS-situations by using and relating formulas, tables
69-75)	KY	AT-S-EI17 graphs and equations